Exhibit O

(Part 2)

A. The References Micromass Cites Are Not Prior Art and Do Not Undermine Any Argument Made in the Reexamination

1. The Douglas and French Article Is Not Prior Art and Does Not Contradict Statements Made in the Reexamination about Ion Traps

Micromass charges inequitable conduct based on AB/Sciex's not disclosing the 1992 Douglas and French article, previously discussed. Defs.' Supp. Resp. to Interrog. No. 11 ¶ 9. (App. Tab 5 at A514.) The Douglas and French article, which is not prior art, follows closely the specification of the '736 patent in discussing many of the experiments that led to the invention of the '736 patent. Micromass relies solely on the article's reference to ion traps. *See supra* p. 25 and fn.13. The observation, made years after the subject matter of the '736 patent was invented, that an analogous effect to collisional focusing could be said to exist in ion traps, does not make ion traps any more relevant to the invention.

Patentability of claims is judged as of the knowledge that existed when the invention was made – not years later. Indeed Micromass's argument is refuted by the Dr. Douglas's testimony:

> A: That paper was published four years later. In four years we had learned a lot about traps – at least, I had – about traps and ion guides.

Douglas Tr. of 8/24/01, at 406. (App. Tab 10 at A592.) The statement to which Micromass's argument is directed ("ion traps operate on a fundamentally different principle") is true. *See* Douglas Tr. of 8/24/01, at 397-98. (App. Tab 10 at A588-89.) Moreover, the Ion Trap references, which Micromass alleges were misrepresented, were

before the Examiner, who was free to make up his own mind about what the references taught. *See Akzo*, 808 F.2d at 1482.

2. The '875 Patent Is Not Prior Art and Does Not Disclose Operating an Ion Guide at High Pressure to Improve Transmission

The '875 patent is not prior art. It, like many of the references, is directed at optimizing the operating parameters of a collision cell to improve the resolution of the daughter ion signal. *See* '875 patent at col. 2, ll. 24-34 ("the improvement comprising maintaining the target thickness of said target gas in said collision cell at least at . . . ."). (App. Tab 14 at A645.) Micromass argues that the '875 patent refutes statements made to the PTO during the reexamination. This assertion is false. Applicants stated that the collision cell of the French application was designed to fragment ions. The ion guide of the invention, however, seeks *not* to fragment ions. Douglas Tr. of 8/24/01, at 363 ("the 736 patent is about ion guides, where we attempt to minimize fragmentation"). (App. Tab 10 at A581.) Indeed, the specification of the '736 patent states that fragmentation, or collisionally induced dissociation, is undesirable. '736 patent at col. 12, ll. 47-49. (App. Tab 1 at A21.)

3. The Thomson and Douglas Article Is Not Prior Art and Does Not Make the Collision Cell Prior Art Relevant

The Thompson and Douglas article was published in May 1995, and is not prior art. Moreover, the article discusses how to increase the fragmentation efficiency of a collision cell. Like its arguments concerning the Douglas and French article and the '875 patent, Micromass alleges that because the Thompson and Douglas article discusses the

"collisional focusing properties of rf quadrupoles of high pressures," it should have been disclosed. Defs.' Supp. Resp. to Interrog. No. 11 ¶ 19. (App. Tab 5 at A517-18.) There is no evidence that shows that the Associated Individuals misrepresented any reference when they stated that the prior art collision cells were designed to fragment ions. Moreover, the statements that the claimed ion guide, unlike a collision cell, seeks to transmit ions while minimizing fragmentation is true. This reference is, therefore, not material and its nondisclosure does not support an allegation of intent to deceive the PTO.

4. The '278 Patent to Dr. Douglas and the ICP Article Are Not Prior Art And Do Not Make Collision Cell Prior Art Pertinent

The '278 patent was filed on August 23, 1991, about three years after the priority date of the '736 patent, and is not prior art. In fact, the '278 patent cites to and discusses the '736 patent. *See* '278 patent at col. 2, ll. 47-51. (App. Tab 13 at A618.)

Likewise, the ICP article is not prior art. The article was published by employees of Micromass in about late 1996. The article describes an interface between various types of sources and in particular an ion source called an inductively coupled plasma ("ICP") ion source. ICP article at 28. (App. Tab 15 at A654.) The article states that the interface includes a "hexapole transfer lens" much like that used in the ion guide of the accused device. *Id.* Concerned that a system that included this interface could infringe the '736 patent, MDS Inc. wrote Micromass a letter dated January 10, 1997, and informed them of its concern. *See* Letter from Parr to Micromass of 1/10/97, at 1. (Tab 16 at A661.) As it turns out, the "hexapole transfer lens" can also be used as a collision cell, but that use was not the source of MDS Inc.'s concern.

Micromass alleges that AB/Sciex should have disclosed to the PTO the '278 patent and its assertion regarding the ICP article, even though they are not prior art. Defs.' Supp. Resp. to Interrog. No. 11 ¶ 11. (App. Tab 5 at A514-15.) Micromass argues that the failure to do so amounts to inequitable conduct as they are not consistent with the arguments made in the PTO.[14] *Id.* There is no basis in law for such an allegation. The issue is whether the Associated Individuals' statements to the PTO were false and made with intent to deceive. They were neither.

5. There Is No Evidence That the Associated Persons Were Aware of the Bruins Reference or That the Reference Discloses Anything More than the References That Were Cited

The Bruins reference is a paper that was presented at the American Society of Mass Spectrometry on June 5-10, 1988. There is simply no evidence that any Associated Individual was aware of that reference, and, therefore, there is no evidence of an intent to deceive. *See FMC*, 835 F.2d at 1415.

Moreover, even if the Associated Individuals were aware of the reference, there would be no violation of the duty of candor to the PTO as the disclosure of the Bruins is merely cumulative of the art that was cited, including the two Smith references discussed

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[14] Indeed, under the regulation which enables the reexamination of patents, narrowly limits the matter that may be brought to the attention of the PTO. That section provides:

> Any person may, at any time during the period of enforceability of a patent, file a request for reexamination by the Patent and Trademark Office of any claim or the patent on the basis of *prior art patents or printed publications* . . . .

37 C.F.R. § 1.510(a) (2001). Neither the '278 patent nor the ICP article are prior art patents. They are also not prior art printed publications.

in the specification of the '736 patent. For example, like the Smith references, Bruins shows a mass spectrometer having an ion guide. Also, like the Smith references, the ion guide of Bruins is operated at a low pressure: Bruins shows that its ion guide is operated at a pressure in the 10^{-4} torr as disclosed in the First Smith reference. There is no material difference. Indeed, in discussing applicability of the Bruins reference, Micromass' own counsel admits that the pressures of Bruins are insufficient to make Bruins prior art at all:

> MR. POPOVSKI: . . . is it your contention that this [the Bruins reference] is prior art?
>
> MR. SCHULER: At those pressures, its not.

Douglas Tr. of 8/24/01, at 387-88. (App. Tab 10 at A584-85.)

Furthermore, the Bruins reference does not provide the length of the rods used in its ion guide. The Bruins reference is, at best, only cumulative to the art before the Examiner. Thus, allegations stemming from non disclosure of the Bruins reference, fail as a matter of law.

V. MICROMASS'S REMAINING ACCUSATIONS DO NOT EVEN STATE A PRIMA FACIE DEFENSE OF INEQUITABLE CONDUCT

Micromass alleges that AB/Sciex "declined to even consult with Dr. Douglas and/or Dr. French in connection with the myriad representations made to the USPTO in connection with the re-examination of the '736 Patent," that the French Declaration was procured "with full knowledge that Dr. French did not review any materials (including the French Application itself) in connection with the Declaration, " and that "Dr. French executed the French Declaration despite the fact that he did not review any materials (including the French Application itself) in connection with the Declaration." Defs.' Supp.

Resp. to Interrog. No. 11 ¶¶ 15-17. (App. Tab 5 at A516.)

First, these allegations are not appropriate bases to support a finding of inequitable conduct. These acts simply lack the necessary predicate: a lack of candor *towards the PTO*. Second, these allegations are pure speculation and not supported by a scintilla of evidence. In fact, Micromass' first allegation is directly contradicted by the deposition testimony of Dr. Douglas and that of Mr. Sutcliffe. *See, e.g.*, Sutcliffe Tr. of 7/27/01, at 14-15, 38, 41. (App. Tab 8 at A538-39, A542, A545.)

Micromass further alleges that "[o]ne or more of the Plaintiffs (or their representatives) misled the Patent Examiner by arguing that one or more prior art references were distinguishable based upon the plain meaning of 'first,' 'second,' 'inlet orifice,' 'interchamber orifice' and 'relatively low level' when they had taken (and intended to take) the opposite position in interpreting the claims of the '736 Patent for infringement purposes." Defs.' Supp. Resp. to Interrog. No. 11 ¶ 5. (App. Tab 5 at A513.) This basis for inequitable conduct simply makes no sense. AB/Sciex's positions in this case regarding claim construction – which are in no way inconsistent with the reexamination prosecution history – simply have no bearing on whether inequitable conduct occurred in the reexamination.

Not a single one of Micromass's inequitable conduct accusations is supported by any evidence of intent to deceive the PTO. Indeed, not a single accusation is based on any material information having been withheld or misrepresented. Accordingly, AB/Sciex submit that this Court should grant summary judgment dismissing Micromass's inequitable conduct defense and declaratory judgment counterclaim.

VI. MICROMASS'S ANTITRUST COUNTERCLAIMS SHOULD BE DISMISSED

Micromass alleges that AB/Sciex violated Section 2 of the Sherman Act by monopolizing, attempting to monopolize, and conspiring to monopolize the triple quadruple mass spectrometer market in the United States. D.I. 46 at 16-19 (¶¶ 24-43); D.I. 47 at 16-19 (¶¶ 24-43). In essence, Micromass alleges that AB/Sciex is attempting to enforce a patent procured by fraud, or alternatively, that AB/Sciex is prosecuting an "objectively baseless" patent infringement lawsuit with the subjective intent to interfere directly with Micromass's business relationships.

Micromass must prove fraud by clear and convincing evidence. *See Argus*, 812 F.2d at 1384. Proof of inequitable conduct, which is nonexistent in this case, is not sufficient to establish "knowing and willful" fraud. *Id.* at 1384-85. As Micromass' antitrust claims are all based on the same operative facts as its inequitable conduct allegations, these allegations will fall with them. Therefore, because Micromass cannot show by clear and convincing evidence that the '736 patent was fraudulently procured, Micromass's misuse defense and antitrust counterclaims are meritless and should be dismissed as a matter of law.

CONCLUSION

Micromass's inequitable conduct allegations are unsupported by any evidence of intent on the part of any Associated Individual to deceive the PTO in either the original or reexamination prosecution of the '736 patent. Therefore, no genuine issue as to any

material fact relating to the intent element of Micromass's inequitable conduct defense exists for resolution at trial, and the Court should grant summary judgment dismissing this defense and the related declaratory judgment counterclaim. Moreover, as Micromass's antitrust counterclaims rest on the same set of facts as its inequitable conduct defense, the Court should also grant summary judgment dismissing these counterclaims.

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CERTIFICATE OF SERVICE

I, Jack B. Blumenfeld, hereby certify that copies of the foregoing were caused to be served this 22nd day of October, 2001, upon the following in the manner indicated:

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Jack B. Blumenfeld

Jack B. Blumenfeld

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IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

APPLERA CORPORATION, MDS INC., and APPLIED BIOSYSTEMS/MDS SCIEX, Plaintiffs,	)	
v.	)	Civil Action No. 00-105 (RRM)
MICROMASS UK LTD. and MICROMASS INC., Defendants.	)	

DECLARATION OF DR. CHRISTIE G. ENKE
IN SUPPORT OF PLAINTIFF'S MOTION
FOR SUMMARY JUDGMENT ON DEFENDANTS' UNENFORCEABILITY AND ANTITRUST DEFENSES AND COUNTERCLAIMS

I, Christie G. Enke of 33 Vista De Oro, Placitas, New Mexico, hereby state as follows:

Personal History, Qualification and Experience

1. I am presently employed at The University of New Mexico as Professor of Chemistry where I have been on the faculty since 1994. Prior to joining the faculty of The University of New Mexico, I was a faculty member of Michigan State University and Princeton University for a combined 35 years. I have a Bachelor degree in chemistry from Principia College and Master of Science and Ph.D. degrees in Chemistry from the University of Illinois.

2. I have over 25 years of experience in mass spectrometry in general and mass spectrometers in particular. During this time, I have served as President of the American Society for Mass Spectrometry and have served on many professional society and journal advisory boards. Further details regarding my background and qualifications are set forth in my curriculum vitae attached as Exhibit A.

The '736 Patent Uses Collisions Between Ions And Molecules To Improve The Continuous Transmission Of Ions In An Ion Guide

3. I have reviewed U.S. Patent No. 4,963,736 ("the '736 patent") and its prosecution files. The '736 patent describes and illustrates a way of greatly increasing the transfer efficiency of an ion guide section of a quadrupole mass spectrometer when used with an atmospheric pressure ion source. Specifically, the '736 patent describes experiments that show that, under certain conditions, not only does an increase in pressure fail to cause a decrease in the transfer efficiency as one would have expected, but surprisingly causes a significant increase in the transfer efficiency of the ion guide section The increased transfer efficiency is directly

responsible for the commensurate increase in the sensitivity of the mass spectrometer. Sensitivity is a very important performance parameter.

4 The increase in the number of ions exiting the ion guide chamber through a limiting aperture into the mass filter section was obtained through the use of what the patent calls collisional focusing -- using collisions to focus the ions into a dense beam that is transmitted through the relatively small orifice between the ion guide section and the mass filter section. Collisional focusing greatly reduces the ion's radial energy thus increasing both transmission to and acceptance into the mass filter section.

Ion Traps Are Fundamentally Different From Ion Guides

5. An ion trap is a rodless vacuum chamber whose fundamental purpose is to store ions, not to transmit them. Ions can be stored in ion traps for relatively long periods of time, as long as several hours or longer. To transmit ions out of the ion trap, the storage function must be disabled. Therefore, ions can be introduced into the ion trap, accumulated during the introduction period, and then emitted in a cyclical or batch process.

6. Introduction of ions into the ion trap from an external ion source is very inefficient. This low efficiency is due to ion rejection by the very RF fields that enable ion storage. Collisions with background molecules in the ion trap causes ions to either be lost or confined at the center of the trap. The confinement at the center of the trap is caused by collisions with a light buffer gas which dampens or "cools" an ion's axial energy. In 1988, collisional cooling was known to be a means for achieving improved mass resolution of an ion trap.

7. I see no teaching in the development of the ion trap that would suggest that collisions with background gas molecules would be beneficial to the operation of an ion guide. The improved transmission of ions was not accomplished in ion traps. continuous transmission of ions is impossible, and collisional cooling was used to bring the ions to a stand-still in the middle of the trap -- not to transport them through a limiting aperture. These fundamental differences in structure and operation are so great that at the time of the invention of the '736 patent, a person of ordinary skill in the art would not have turned to ion traps for guidance in addressing the problems that the '736 patent is directed to.

Tandem Mass Spectrometers Include a Collision Cell For Fragmenting Ions

8. Tandem mass spectrometers are mass spectrometers that include two mass filter sections separated by a collision cell section. The function of a collision cell is to provide an environment for energetic collision of ions with molecules for the purpose of ion dissociation or fragmentation. The collision cell typically includes an AC-only field. The AC-only field in the device minimizes the loss of the resultant ion fragments by confining them to the area between the rods. Ions enter a collision cell with a kinetic energy large enough so that the collision energy is sufficient to cause one or more interatomic bonds in the ion to break. The result is a dissociation or fragmentation of the ion into two or more parts. These fragments or "daughter ions" are transmitted to the second mass filter section for analysis.

9. Collision cells are optimally operated at pressures at which ions would undergo only a few collisions with the background gas. Higher pressures are deleterious to the function of the multipole collision cell as they do not contribute to further fragmentation and can lead to increased ion loss. Experience with the collision cells up to the time of the invention teaches that

the AC-only field helps reduce the ion losses due to scattering collisions; it does not teach that ion transmission can be improved by collisions that focus the ions around a central longitudinal axis for passage through a limiting aperture.

10. I have reviewed U.S. Patent No. 4,121,099 ("the '099 patent"). The '099 patent describes an electrostactic method for focussing ions. In electrostatic focussing, ions are exposed to an electric field created by a DC voltage. Ion collisions with a background gas do not play a part in electrostatic focussing.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Executed on October 22, 2001

Christie G Enke

Christie G. Enke

Exhibit A

TA 278

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Christie G. Enke

Summary

Chris Enke is Professor of Chemistry at The University of New Mexico. He received the BA degree from Principia College in 1955 and the Ph.D. from the University of Illinois in 1959. His thesis, concerning the formation of surface oxide films on platinum electrodes, was done with Herbert Laitinen While at Illinois, he also worked with Howard Malmstadt on the introduction of a graduate lab/lecture course in the electronics of laboratory instrumentation. Prior to his move to The University of New Mexico in 1994, he was Instructor and Assistant Professor at Princeton and then Associate Professor, and Professor at Michigan State University.

Throughout his career, he has remained active in both fundamental research and the development of new teaching materials and methods. His research interests have included electroanalytical chemistry, electrolytic conductance, computer-based instrumentation, array detector spectroscopy, and mass spectrometry. Over 65 students have received their Ph.D.'s under his direction. With them, he has published well over 100 papers in a dozen different journals. He is coinventor of the triple quadrupole mass spectrometer (along with Rick Yost). His current research interests include time-of-flight mass spectrometry, electrospray ionization, and environmental and biomedical applications of chromatography/mass spectrometry. He and Howard Malmstadt wrote the pioneering work, "Electronics for Scientists." Then he, Malmstadt and Stan Crouch went on to write several more texts and lab books in the electronics of laboratory instrumentation. This same team has developed and presented the hands-on ACS short course, "Electronics for Laboratory Instrumentation" scores of times beginning in 1979. His current writing project is an introductory analytical chemistry text called, "The Art and Science of Chemical Analysis".

Chris has served as President of the American Society for Mass Spectrometry. He has also been Chairman of the Computers in Chemistry Division of ACS and has served on many professional society and journal advisory boards. He received the ACS awards for Scientific Instrumentation (1974) and Computers in Chemistry (1989) and the ASMS award for Distinguished Contribution to Mass Spectrometry (1993).

Education

1955-1959 University of Illinois Urbana, IL

MS (1957) and Ph. D. in Chemistry studying with Herbert A. Laitinen

1951–1955 Principia College Elsah, IL

B.A., Major in Chemistry.

Academic Experience

1994–present University of New Mexico Albuquerque, NM

Professor of Chemistry

1966–1994 Michigan State University East Lansing, MI

Associate Professor of Chemistry to 1972, then Professor

1983–1984 CIRES, University of Colorado Boulder, CO

Visiting Fellow

	1959–1966	Princeton University Instructor to 1961, then Assistant Professor of Chemistry	Princeton, NJ
Honors and Awards, Selected	1993	Distinguished Contribution in Mass Spectrometry (with Rick Yost)	ASMS
	1992	Distinguished Faculty Award	MSU
	1989	Award for Computers in Chemistry	ACS
	1981	Fellow	AAAS
	1974	Award for Chemical Instrumentation	ACS
Professional Service	1996-98	Past President	ASMS
	1994-96	President	ASMS
	1992-94	V.P. for Programs	ASMS
	1989&1997	Program Chairman	Asilomar Conf. in Mass Spectrom.
	1989-97	Editorial Board	*J. Am Soc. Mass Spectrom.*
	1988-92	Member, BMT Study Section	NIH
	1986-88	Board member at large for education	ASMS
	1986-89	Editorial Board	*Rapid Commun. in Mass Spectrom.*
	1983	Program Chairman	Div. Of Computers in Chem., ACS
	1981	Chairman,	Div. Of Computers in Chem., ACS
	1979-pres.	Member Special Study Sections	NIH
	1977-78	Chairman	MSU Section, ACS
	1976-pres.	Visiting Assoc.	Committee on Professional Training, ACS
	1962-65	Editorial Advisory Board	*Analytical Chemistry*
	1969-71	Chair, Physical Electrochem. Div.	The Electrochem. Soc.
	1963-1971	Member, Executive Comm.	The Electrochem. Soc.

Current Research Interests

Time-of-Flight MS Detection for GC/MS and LC/MS

Loss of sensitivity in GC/MS when full mass spectra are collected can be alleviated by the use of an array detector spectrometer such as an ion trap or Fourier transform instrument. However, only time-of-flight mass spectrometers (TOFMS) have the capability to acquire the 50 to 100 spectra per second that will provide good chromatographic resolution. We are developing a version of TOFMS that is capable of storing and analyzing all the ions created from continuous sample introduction. High sample utilization efficiency is required for the rapid generation of high quality mass spectra. High rates of spectral generation can provide greatly enhanced chromatographic resolution using the mass spectral data. The intensity profiles of individual ion masses can be organized into synchronized sets around each chromatographic peak. Each synchronized set belongs to a different compound and the members of each set define a different

compound's spectrum. The number of compounds that can be identified and quantified in a chromatographic run can be increased by as much as 100 times. Current work includes the design of a radically new type of ion mirror for improved ion transmission and mass resolution, implementation of the scheme for efficient ion collection and its application to the analysis of complex natural systems. Support is principally from NIH.

Fundamental studies in Electrospray Ionization
Despite the great success in the application of electrospray ionization (ESI), the development of ESI methods remains something of an art due to huge variations in ionization efficiency among analytes and the suppressive effects sometimes observed. This is particularly true for the analysis of the smaller, singly charged molecules. A model that enables the prediction and potential circumvention of these effects would be of great value to experimenters. We have developed such a model based on partition equilibrium of the ions between the neutral droplet interior and the surface region that contains the excess charge. This model correctly predicts the relative response of small peptide analytes from values for their relative surface affinity. It also predicts the nature of the suppression phenomenon, the types of analytes that will cause suppression and the concentration at which they will do so. These predictions can be made from readily accessible information about the analytes.

While trying to reconcile the differences in ESI behavior with conducting and non-conducting capillary needles, we discovered a new mode of electrospray ionization. It is a constant voltage mode of variable current that operates at the onset of the ESI effect. This effect is accessible with the non-conducting needles because of the resistance of the solution in them. Placing a very large resistance in series with a conducting needle enables them to access this new mode as well. We are currently working to characterize this mode relative to its physical, electrical and spectroscopic behavior. NIH and Pfizer, Inc. are providing support.

Personal Information

Chris Enke was born on July 8, 1933 in Minneapolis, Minnesota. His parents are Alvin C. Enke (deceased) and Mae E. Nichols. On December 24, 1988, he married Bea Reed in East Lansing, MI. Collectively, they have three children, David and Anne Enke, and Gillian Reed. Chris's interests include woodworking, stained glass, walking and Yoga.

Publications

Books

1994 Malmstadt, H.V., Enke, C.G., and Crouch, S.R.
Microcomputers and Electronic Instrumentation: Making the Right Connections
American Chemical Society, Washington, DC

1984 Malmstadt, H.V., Enke, C.G., and Crouch, S.R.
Laboratory Electronics for Scientists: Hands On
American Chemical Society, Washington, DC

1981 Malmstadt, H.V., Enke, C.G., and Crouch, S.R.
Electronics and Instrumentation for Scientists
Benjamin/Cummings, Menlo Park, CA

1974 Malmstadt, H.V., Enke, C.G., and Crouch, S.R.
Electronic Measurements for Scientists,
W. A. Benjamin, Menlo Park, CA.

1972 Enke, C.G., Editor,
Electrochemical Contributions to Environmental Protection,
Electrochemical Society, Inc., Princeton, NJ

1969 Malmstadt, H.V. and Enke, C.G
Digital Electronics for Scientists
W. A. Benjamin, New York

1962 Malmstadt, H.V. and Enke, C.G
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Johnson, D. E. and C. G. Enke. "Bipolar Pulse Technique for Fast Conductance Measurements." Anal. Chem. 42: 329-335 (1970)

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Ramaley, L. and C. G. Enke. "Instrumentation for the Measurement of the Electrical Double-Layer Capacitance at Solid Electrodes." J. Electrochem. Soc. 112: 943-947 (1965)

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Malmstadt, H. V. and C. G. Enke. "Electronics and Instrumentation in Chemical Research." Anal. Chem. 33: 23A-27A (1961)

Laitinen, H. A. and C. G. Enke. "The Electrolytic Formation and Dissolution of Oxide Films on Platinum." J. Electrochem. Soc. 107(9): 773-781 (1960)

Book Chapters, Selected

"The Unique Capabilities of Time-of-Flight Mass Analyzers" C.G. Enke in Advances in Mass Spectrometry, Volume 14, E.J. Karjalainen, A.E. Hesso, J.E. Jalonen, U.P. Karjalaine, Editors. Elsevier Science, Amsterdam, 1998

Conductivity and Conductometry". F. James Holler and C.G.Enke in Laboratory Techniques in Electroanalytical Chemistry, New York, NY, Peter T. Kissinger and William R. Heineman, Eds., Marcel Dekker, Inc., p. 237-265 (1996)

"Achieving the Maximum Characterizing Power for Chromatographic Detection by Mass Spectrometry". J.F. Holland, J. Allison, J.T. Watson and C.G.Enke in Time-of-Flight Mass Spectrometry, Washington, DC, Robert J. Cotter, Ed., American Chemical Society. p. 157-176 (1994)

"Microbial Characterization by Phospholipid Profiling: Practice and Problems in Microbial Identification". M.J. Cole and C.G. Enke, Identification of Microorganisms by Mass Spectrometry, Catherine Fenselau, Ed., American Chemical Society. (1993)

"Computer-Assisted Mass Spectral Interpretation: MS/MS Analysis" K.J. Hart and C.G. Enke, Comp-Enhanced Analytical Spectroscopy. New York, NY. P. Jurs Ed., Plen Press. 3 p. 149-183 (1992)

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Patents

Time-Compressed Chromatography in Mass Spectrometry. J.F. Holland, R.D. McLane, G.E. Yefchak and C.G. Enke, U.S. Patent No. 5,157,430, Dec 29, 1992

Combination of Time Resolution and Mass Dispersive Techniques in Mass Spectrometry. J.T. Stults, J.F. Holland and C.G. Enke, U.S. Patent No. 4,472,631, Sept. 18, 1984

High Repetition Rate Transient Recorder With Automatic Integration. B.H Newcome, J.F. Holland and C.G. Enke. U.S. Patent No. 4,234,791. Nov 25 1980

Tandem Quadrupole Mass Spectrometer for Selected Ion Fragmentation Studies and Low Energy Collision Induced Dissociation Therefor. R.A. Yost, J.D. Morrison and C.G. Enke, U.S. Patent No. 4,234,791, Nov. 18, 1980

Information Display for Telephones. R.D. Giglia and C.G. Enke, Patent Issued in 1973 to American Cyanamid Company

Modular Unit for Making Plug-in Electrical Connections (The basic concept of the Analog-Digital Designer). H.V. Malmstadt and C.G. Enke, U.S. Patent No. 3,524,198. Aug. 11, 1970

Ph.D. Students

Ph.D. Students	1999	Terri Constantopoulos	Tina Erickson
	1997	Fei Liu Overney	Paul Miyares
	1996	Qinchung Ji Eric C. Hemenway	Calin G. Znamirovschi
	1995	Paul R. Vlasak Ronald F. Lopshire	Douglas J. Beussman
	1993	Richard D. McLane	Mary Puzycki Seeterlin
	1991	Mark LaPack Jon Wahl	Stephen Chan
	1990	Amidollah Salari Mark Cole	George Yefchak
	1989	Norman E. Penix Kevin Hart	Eric D. Erickson
	1988	Adam J. Schubert Kathleen A. Fix	Peter T. Palmer Brian A. Eckenrode
	1987	Michael J. Kristo	
	1986	Hugh Gregg Mark R. Bauer	Lynn Chakel
	1985	John Stults Kevin Cross	Robert Engerer
	1983	Peter J. Aiello Bruce Newcome	Carl Myerholtz
	1982	John A. Chakel Jiin-Wu Chai	Ching-Cherng Lii
	1981	Sechoing Lin R. Kazmer Latven	Hsiao-Yung Guh
	1980	Paul D. Tyma	
	1979	Inna Deng Timothy G. Kelly	Richard A. Yost
	1978	James E. Hornshuh Minchen Wang Spyros Hourdakis	Edward J. Darland Erik Carlson
	1977	Floyd James Holler	Thomas A. Last
	1975	Timothy Alan Nieman	

1974	Keith Joseph Caserta	Brian Keith Hahn
1972	Thomas Niemczyk	David C Wenke
1971	Bob Duane Bleasdell	Janet Kudirka
1970	Donald E. Johnson	
1969	Peter H. Daum	
1966	Ronald L. Brubaker Michael J.R. Vasile	G. Daniel Robbins
1965	William D. Weir	
1963	Louis Ramaley	

Very Recent and Special Invited Presentations (Selected from over 200)

1999	Lead-off speaker, 16th Montreaux Liquid Chromatography Mass Specometry Symposium. Hilton Head Island, SC
1999	FACSS, 1999. In symposium on curriculum development in the analytical sciences. Vancouver, Canada
1999	Fisher Award Symposium honoring Douglas Skoog ACS, Anaheim, CA
1997	Keynote Lecture on TOF-MS 14th International Mass Spectrometry Conference Tampere, Finland
1997	Analytical Seminar, student invitee Iowa State Univ., Des Moines, IA
1997	9th Sanibel Conference on Mass Spectrometry Sanibel Island, FL
1997	Departmental Seminar Florida State Univ. Tallahassee, FL
1996	Fisher Award Symposium honoring Graham Cooks ACS, San Francisco, CA
1996	9th Annual Tandem Mass Spectrometry Workshop Lake Louise, Alberta, Canada
1996	Asilomar Conference on Mass Spectrometry Pacific Grove, CA
1996	Keynote speaker Rocky Mountain Conference on Analytical Chemistry Denver, CO
1993	Distinguished Lecture Series Frontiers in Chemical Research Texas A&M University, College Station, TX
1993	Distinguished Contribution Award Address 41st ASMS Conference, San Francisco, CA
1993	Departmental Seminar, student invitee Indiana University, Bloomington, IN
1991	Keynote Lecture on TOF-MS 12th International Mass Spectrometry Conference Amsterdam, Holland
1989	Computers in Chemistry Award Address ACS Meeting, Dallas, TX

1982	Invited Lecture, "*Automation in the Research Laboratory*" 1st Annual Conference on Computers in Science sponsored by Science Magazine. Chicago, IL
1981	Invited Lecture, "*Beyond Mere Automation,*" IUPAC, Vancouver, Canada
1977	"Scientific Writing: Telling a Story" presented at National Council on the Teaching of English New York City, NY
1961	Fisher Award Symposium honoring Herb Laitinen ACS, St. Louis, MO

Other Invited Presentations

The complete list of invited lectures is too extensive and uninteresting to include in this document. Over 200 invited talks have been presented They are almost evenly divided between talks at national meetings of professional societies and departmental and industrial seminars.

Volunteered Presentations

Our group has a long history of presenting papers at national conferences. Volunteered presentations by my students or me now approach 250 in number. These presentations have been primarily at meetings of the ACS, ASMS, FAACCS, and Pitcon.

Supplementary Information

Additional Honors & Awards	1992	Best Paper Award	Midland Chapter, Sigma Xi
	1982	Senior Research Award	MSU Chapter, Sigma Xi
	1964-69	Fellow	Alfred P. Sloan Foundation
	1957-58	DuPont Teaching Assistant	Univ of Illinois
Additional Professional Service	1987-88	Alternate Councilor	MSU Section, ACS
	1977	Nominating Comm.	Div. Of Computers in Chemistry, ACS
	1972-74	Chairman, Education Comm.	The Electrochemical Soc.
	1969-75	Alternate Councilor	MSU Section, ACS
	1962-65	Canvassing Comm., Chem Instrum. Award	ACS
	1962	Secretary, Treasurer	Princeton Section, ACS
Industrial Appointments	1980	Princeton Applied Research	
	1979-83	General Motors Research Laboratory	
	1979-80	Abbott Laboratories	
	1974-79	E & L Instruments	
	1973-77	MacPherson Instruments	
	1964-74	American Cyanamid	
	1961-73	Heath Co.	
	1960-63	Standard Oil of Ohio	
	1956	Summer Research Chemist	Johns-Manville Corp.

Additional Books

1982 Malmstadt, H.V., Enke, C.G., and Crouch, S.R., Holler, F.J. and Avery, J.P., *Experiments in Electronics, Instrumentation, and Micro-computers*, Benjamin/Cummings, Menlo Park, CA

1977 Malmstadt, H.V., Enke, C.G., and Crouch, S.R. *Electronics for Scientists*, E & L Instruments, Derby, CT

1974 Malmstadt, H.V., Enke, C.G., and Crouch, S.R. *Optimization of Electronic Measurements*, W. A. Benjamin, Menlo Park, CA.

1973 Malmstadt, H.V., Enke, C.G., and Crouch, S.R. *Digital and Analog Data Conversions*, W. A. Benjamin, Menlo Park, CA.

1973 Malmstadt, H V., Enke, C G., and Crouch, S R.
Control of Electrical Quantities in Instrumentation,
W. A. Benjamin, Menlo Park, CA.

1973 Malmstadt, H.V., Enke, C.G., and Crouch, S R.
Electronic Analog Measurements and Transducers,
W. A. Benjamin, Menlo Park, CA

1972 Malmstadt, H.V. and Enke, C.G
Computer Logic: A Laboratory Workbook,
W. A. Benjamin, Menlo Park, CA

Additional Scientific Articles

Wilson, B. E., J. W. Chai and C. G. Enke. "Ion Trajectory Modelling in Time-Dependent Potential Fields: Application to RF-Only Quadrupoles." Computers & Chemistry **10**: 15-19 (1986)

Cross, K. P. and C. G. Enke. "A Spectral Matching System for MS/MS Data." Computers & Chemistry **10**: 175-181 (1986)

Gelderloos, D. G., K. L. Rowlen, J. W. Birks, J. P. Avery and C. G. Enke. "Whole Column Detection Chromatography: Computer Simulations." Anal. Chem. **58**: 900-903 (1986)

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Wahl, J. H., C. G. Enke and V. L. McGuffin. "Solvent Modulation: An Accurately Modelled Method for Controlling Solute Retention in Liquid Chromatography." Proceedings of the International Symposium on Capillary Chromatography **9**: 406-413 (1988)

Crawford, R. W., H. R. Brand, C. M Wong, H. R Gregg, P. A. Hoffman and C. G. Enke. "An Instrument Database System: Application to MS/MS." Anal. Chem. **56**: 1121-1127 (1984)

Newcome, B. H. and C. G. Enke. "A Twin-Bus Microprocessor System for Laboratory Automation." Rev. Sci. Instrum **55**: 2017-2022 (1984)

Hoffman, P. A. and C. G. Enke. "Inter-Processor Communications Software for a Hierarchical System of Intelligent Laboratory Instrumentation." Computers and Chemistry **7**(2): 47-50 (1983)

Enke, C. G., J. T. Stults, J. F. Holland, J. D. Pinkston, J. Allison and J. T. Watson. "MS/MS By Time-Resolved Magnetic Dispersion Mass Spectrometry." Int. J. Mass Spectrom. & Ion Processes **46**: 229 (1983)

Yost, R. A. and C. G. Enke. "An Added Dimension for Structure Elucidation Through Triple Quadrupole Mass Spectrometry." American Laboratory (June): 88-95 (1981)

Deng, I. and C. G. Enke. "Adenosine Selective Electrode." Anal. Chem. **52**: 1937-1940 (1980)

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Holler, F. J., C. G. Enke and S. R. Crouch. "Critical Study of Temperature Effects in Stopped-Flow Mixing Systems." Analytical Chimica Acta 117: 99-113 (1980)

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Kudirka, J. M., P. H. Daum and C. G. Enke. "Comparison of Coulostatic Data Analysis Techniques." Anal. Chem. 44: 309-314 (1972)

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Weir, W. D. and C. G. Enke. "The Current-Impulse Relaxation Technique and the Kinetics of Rapid Electrochemical Reactions II: The Electrochemical Reduction of Mercury (I)." J. Phys. Chem. 71: 280-291 (1967)

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Salomon, M., C. G. Enke and B. E. Conway. "Some Aspects of the Energetics and Kinetics of Electrochemical Proton Transfer." J. Chem. Phys. **43**(December): 3989-3998 (1965)

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Additional Book Chapters

"Conductivity and Conductometry". F.J. Holler and C.G. Enke, Laboratory Techniques in Electroanalytical Chemistry. New York, NY, W. R. Heineman and P. T. Kissinger, Eds., Marcel Dekker, Inc., p. 235-266 (1984)

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"Analytical Chemistry". C.G. Enke, World Book. Chicago, IL (1981)

"A Multi-Microcomputer Controlled, Vidicon Stopped-Flow Spectrophotometer". E.M. Carlson and C.G. Enke, American Chemical Society Symposium Series. Washington, DC, Yair Talmi, Ed., American Chemical Society, p. 169-180 (1979)

CERTIFICATE OF SERVICE

I, Jack B. Blumenfeld, hereby certify that copies of the foregoing were caused to be served this 22nd day of October, 2001, upon the following in the manner indicated:

BY HAND

Robert W. Whetzel
Richards, Layton & Finger
One Rodney Square
P.O. Box 551
Wilmington, DE 19899

BY FEDERAL EXPRESS

Kenneth Schuler
Latham & Watkins
Sears Tower
Suite 5800
Chicago, IL 60606

Jack B. Blumenfeld

CERTIFICATE OF SERVICE

I, Jack B. Blumenfeld, hereby certify that copies of the foregoing were caused to be served this 22nd day of October, 2001, upon the following in the manner indicated:

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BY FEDERAL EXPRESS

Kenneth Schuler
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Chicago, IL 60606

Jack B. Blumenfeld
Jack B. Blumenfeld

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